Algebra II Name: ____________
Notes 12.3 Date: ________ Pd: ____

12.3 Box-and-Whisker Plots

In order to draw a box-and-whisker plot, you need to first find the following:

Range: difference between largest + smaller value
Quartiles: divide the data into FOUR EQUAL regions
Interquartile Range: difference between upper + lower quartiles ($Q_3 - Q_1$)

Example 1: Earthquake intensities are measured on the Richter scale. For the earthquake intensities listed below find the following:

6.4, 6.6, 6.8, 6.8, 6.8, 6.9, 7.0, 7.0, 7.0, 7.1, 7.2, 7.2, 7.3, 8.2

7.2 6.8 8.2 6.8 6.8 7.0 6.6 7.2 7.0
7.3 6.9 7.1 6.4 7.0 6.6

a. range $8.2 - 6.4 = 1.8$

b. quartiles
Q_1 - 6.8
Median (Q_2) - 7.0
Q_3 - 7.2

c. interquartile range

Algebra II Name: ____________
Notes 12.3 Date: ________ Pd: ____

You try: Find the range, quartiles, and interquartile range for each set of data.

1.) 75, 90, 53, 85, 75, 83, 73, 80, 46, 89, 91, 93, 85, 95, 68, 88, 97, 70, 96

range: ________
Q_1: ________
Q_2: ________
Q_3: ________
interquartile range: ________

2.) 82, 65, 11, 31, 50, 95, 33, 88, 79, 10, 15, 45, 51, 66, 53

range: ________
Q_1: ________
Q_2: ________
Q_3: ________
interquartile range: ________

Algebra II Name: ____________
Notes 12.3 Date: ________ Pd: ____

Example 2: Use the data from Example 1 to create a box-and-whisker plot.

Minimum: ______
Maximum: ______
Q_1: ________
Q_2: ________
Q_3: ________

Create box-and-whisker plots for the problems under the "You try" of your notes:

1.) Minimum: ______
Maximum: ______
Q_1: ________
Q_2: ________
Q_3: ________

2.) Minimum: ______
Maximum: ______
Q_1: ________
Q_2: ________
Q_3: ________

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